

553,504

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/097401 A1

(51) International Patent Classification⁷: **G01N 33/00**,
G01P 1/02, G01D 7/00, G01R 33/00, G01B 15/00, C23C
14/34

(74) Agents: **PEACOCK, Bruce, E.** et al.; Wegman, Hessler &
Vanderburg, 6055 Rockside Woods Boulevard, Suite 200,
Cleveland, OH 44131 (US).

(21) International Application Number:
PCT/US2004/012292

(22) International Filing Date: 21 April 2004 (21.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/465,190 24 April 2003 (24.04.2003) US

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(71) Applicant (for all designated States except US): **TOSOH
SMD, INC.** [US/US]; 3600 Gantz Road, Grove City, OH
43123 (US).

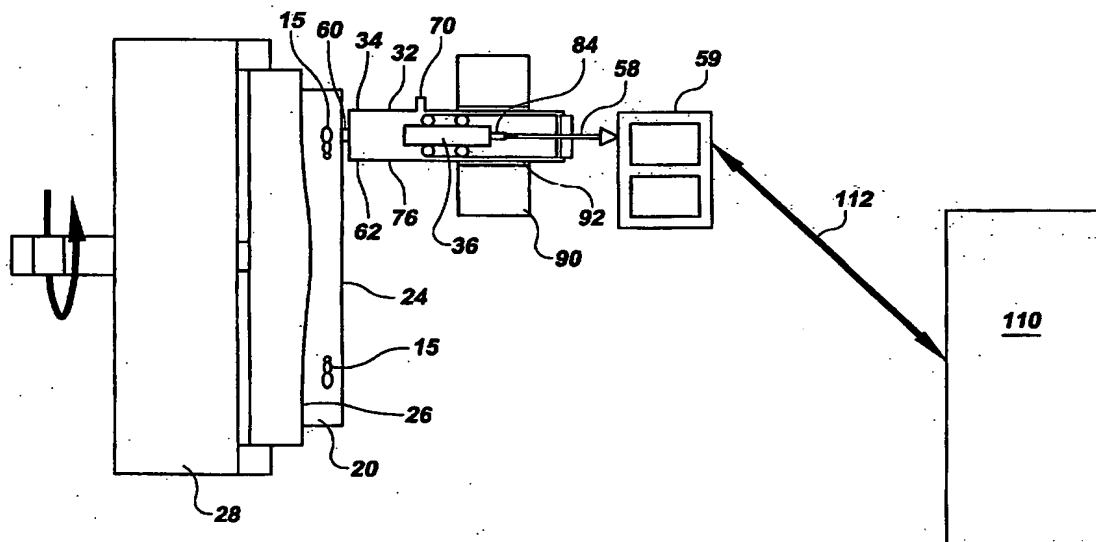
(72) Inventor; and

(75) Inventor/Applicant (for US only): **LEYBOVICH,
Alexander** [US/US]; 5283 Gillette Avenue, Hilliard, OH
43026 (US).

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SYSTEMS AND METHODS FOR NON-CONTACT MEASURING SPUTTERING TARGET THICKNESS ULTRA-
SONICS



(57) Abstract: A method and apparatus for ultrasonically measuring the thickness of sputter targets of varying shapes. An immersion bubble (32) and transducer (36) provide pulses to a front surface (24) and a front surface/bonded surface (26) interface of a target. The pulses generate reflected echoes that are converted to electric signals. By measuring the difference in time that the electric signals occur the thickness of the target may be approximated to identify whether the thickness of the target is appropriate for use. The system includes a sputter track (15), specimen (20), chuck (28), nozzle (34), columns (60), opening (62), inlet (70), cable (58), gauge (59), turret (90), position (92), remote PC controller (110), electrical line (112), and rear part (84).

WO 2004/097401 A1



Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.